



# Hydraulic Fracturing: Chemical Disclosure Requirements

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## Summary

Hydraulic fracturing is a technique used to free oil and natural gas trapped underground in low-permeability rock formations by injecting a fluid under high pressure in order to cause cracks in the formations. The composition of a fracking fluid varies with the nature of the formation, but typically contains mostly water; a proppant to keep the fractures open, such as sand; and a small percentage of chemical additives. Some of these additives may be hazardous to health and the environment. The Shale Gas Production Subcommittee of the Secretary of Energy Advisory Board (SEAB) has recommended public disclosure, on a well-by-well basis, of all of the chemical ingredients added to fracking fluids, with some protection for trade secrets.

Currently, no such law or regulation exists at the federal level. In his 2012 State of the Union Address, President Barack Obama said he would obligate “all companies that drill for gas on public lands to disclose the chemicals they use,” citing health and safety concerns. Not long afterward, the draft of a proposed fracking chemical disclosure rule from the Bureau of Land Management (BLM) was disclosed. This draft rule would require companies employing hydraulic fracturing on lands managed by BLM to disclose the content of the fracking fluid. In addition, there have been legislative efforts in the 112<sup>th</sup> Congress. H.R. 1084 and S. 587, the Fracturing Responsibility and Awareness of Chemicals Act (FRAC Act), would create more broadly applicable disclosure requirements for parties engaged in hydraulic fracturing.

Chemical disclosure laws or proposals at the state level vary widely. Of the 11 current laws and three proposals examined in this report, only a few require direct public disclosure of chemical information by mandating that parties post the information on the FracFocus chemical disclosure website. The level of detail required to be disclosed often depends on how states protect trade secrets, as these protections may allow submitting parties to withhold information from disclosure at their discretion or to submit fewer details about proprietary chemicals, except, perhaps, in emergencies. Even if a disclosure law does not protect information from public disclosure, other state laws, such as an exemption in an open records law, may do so. States also have varying laws regarding the timing of these disclosure requirements.

This report provides an overview of current and proposed laws at the state and federal levels that require the disclosure of the chemicals added to the fluid used in hydraulic fracturing. **Appendix A** provides a glossary of many of the terms used in this report. **Appendix B** contains a table summarizing the fracking chemical disclosure requirements described in this report. For an overview of the relationship between hydraulic fracturing and the Safe Drinking Water Act (SDWA), including a discussion of baseline water testing issues, see CRS Report R41760, *Hydraulic Fracturing and Safe Drinking Water Act Issues*, by Mary Tiemann and Adam Vann.

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## Introduction

Hydraulic fracturing is a technique used to free oil and natural gas trapped underground in low-permeability rock formations by pumping a fracturing fluid under high pressure in order to cause cracks in the formations.<sup>1</sup> The composition of a fracking fluid varies with the nature of the formation, but typically contains mostly water; a proppant to keep the fractures open, such as sand; and a small percentage of chemical additives.<sup>2</sup> A primary function of these additives is to assist the movement of the proppant into the fractures made in the formation by reducing friction between the fracking fluid and the pipe used to pump the fluid into the formation.<sup>3</sup> Although some of these chemical additives may be harmless, others may be hazardous to health and the environment.<sup>4</sup> A report by the minority staff of the House Committee on Energy and Commerce found that between 2005 and 2009, the 14 leading oil and gas service companies used “780 million gallons of hydraulic fracturing products” in fracking fluids, with “95 of the products containing 13 different carcinogens.”<sup>5</sup>

The Shale Gas Production Subcommittee of the Secretary of Energy Advisory Board (SEAB) has made several recommendations intended to address the effect of shale gas production on health and the environment.<sup>6</sup> One recommendation calls for the public disclosure, on a “well-by-well basis,” of all of the chemical ingredients—“not just those that appear on Material Safety Data Sheets”—added to fracking fluids, with some protection for trade secrets.<sup>7</sup> Proponents of chemical disclosure laws maintain that public disclosure would allow for health professionals to better respond to medical emergencies involving human exposure to the chemicals; assist researchers in conducting health studies on shale gas production; and permit regulators and others to perform baseline water testing to track potential groundwater contamination if it occurs.<sup>8</sup> However, some manufacturers of the additives, as well as others in the industry, remain reluctant to disclose what they consider to be proprietary chemical formulas, expressing concerns that they would lose their valuable trade secrets if competitors had access to them.<sup>9</sup>

This report provides an overview of current and proposed laws at the state and federal levels that require the disclosure of the chemicals added to the fluid used in hydraulic fracturing. Currently,

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<sup>1</sup> DEP’T OF ENERGY, MODERN SHALE GAS DEVELOPMENT IN THE UNITED STATES: A PRIMER, ES-4 (2009) [hereinafter DEP’T OF ENERGY PRIMER], *available at* [http://www.netl.doe.gov/technologies/oil-gas/publications/epreports/shale\\_gas\\_primer\\_2009.pdf](http://www.netl.doe.gov/technologies/oil-gas/publications/epreports/shale_gas_primer_2009.pdf).

<sup>2</sup> *See id.* at 56, 61-64.

<sup>3</sup> *Id.*; RESERVOIR STIMULATION §§7-6.2, 7-6.4 (Michael J. Economides et al. eds, 3d ed. 2000).

<sup>4</sup> DEP’T OF ENERGY PRIMER, *supra* note 1, at 62.

<sup>5</sup> MINORITY STAFF OF H. COMM. ON ENERGY AND COMMERCE, 112<sup>TH</sup> CONG., CHEMICALS USED IN HYDRAULIC FRACTURING 5, 9 (2011) [hereinafter MINORITY REPORT ON FRACKING CHEMICALS], *available at* <http://democrats.energycommerce.house.gov/sites/default/files/documents/Hydraulic%20Fracturing%20Report%204.18.11.pdf>.

<sup>6</sup> DEP’T OF ENERGY, SHALE GAS PRODUCTION SUBCOMMITTEE SECOND NINETY DAY REPORT 1 (2011), *available at* [http://www.shalegas.energy.gov/resources/111811\\_final\\_report.pdf](http://www.shalegas.energy.gov/resources/111811_final_report.pdf).

<sup>7</sup> *Id.* at 5-6, 17. Employers are required to use MSDSs to warn employees of certain hazardous chemicals in the workplace under the Occupational Safety and Health Act. *See* 29 C.F.R. §1910.1200.

<sup>8</sup> *See* Lisa Song, *Secrecy Loophole Could Still Weaken BLM’s Tougher Fracking Regs*, INSIDECLIMATE NEWS, February 15, 2012, *available at* <http://insideclimatenews.org/news/20120215/blm-fracking-chemicals-disclosure-hydraulic-fracturing-proprietary-natural-gas-drilling>.

<sup>9</sup> *See* MINORITY REPORT ON FRACKING CHEMICALS, *supra* note 5, at 11-12.

no such law or regulation exists at the federal level. In his 2012 State of the Union Address, President Barack Obama said he would obligate “all companies that drill for gas on public lands to disclose the chemicals they use,” citing health and safety concerns.<sup>10</sup> Not long afterward, a draft of a proposed fracking chemical disclosure rule from the Bureau of Land Management (BLM) that would require disclosure of the content of fracking fluids used on lands managed by BLM was disclosed. In addition, there have been legislative efforts in the 112<sup>th</sup> Congress. H.R. 1084 and S. 587, the Fracturing Responsibility and Awareness of Chemicals Act (FRAC Act), would create more broadly applicable disclosure requirements for parties engaged in hydraulic fracturing.

At the state level, the Interstate Oil and Gas Compact Commission, an organization with members that include state regulators and industry representatives, has argued that current regulation of hydraulic fracturing by the states is sufficient.<sup>11</sup> At least 11 states already have some form of chemical disclosure requirements. These provisions vary widely, but generally indicate (1) which parties must disclose information about chemical additives and whether these disclosures must be made to the public or a state agency; (2) what information about chemicals added to a fracking fluid must be disclosed, including how specifically individual chemical ingredients and their actual concentrations within particular additives must be described; (3) what protections, if any, will be given to trade secrets; and (4) at what time disclosure must be made in relation to when the fracking takes place. Others states are in the process of considering disclosure laws or regulations.

For a glossary of some of the terms used in this report, see **Appendix A**. For a table summarizing the chemical disclosure laws and proposals described in this report, see **Appendix B**.

## Federal Proposals

### Legislation in the 112<sup>th</sup> Congress: The FRAC Act

On March 15, 2011, the Fracturing Responsibility and Awareness of Chemicals Act of 2011 (FRAC Act), H.R. 1084 and S. 587, was introduced in both the Senate and the House of Representatives. The bills have some minor language differences, but are substantially similar. (They also are similar to bills introduced in the past Congress.) Each contains two amendments to the Safe Drinking Water Act (SDWA)—one that would amend the definition of underground injection to include hydraulic fracturing, and another that would create a new disclosure requirement for the chemicals used in hydraulic fracturing.

The second amendment to the SDWA in the FRAC Act would create a new hydraulic fracturing disclosure requirement. H.R. 1084 would create a new statutory obligation requiring anyone conducting hydraulic fracturing to

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<sup>10</sup> President Barack Obama, 2012 State of the Union Address (January 24, 2012), *available at* <http://www.whitehouse.gov/photos-and-video/video/2012/01/25/2012-state-union-address-enhanced-version#transcript>.

<sup>11</sup> *See, e.g.,* Interstate Oil and Gas Compact Comm’n, Hydraulic Fracturing, *available at* <http://www.iogcc.state.ok.us/hydraulic-fracturing>.

disclose to the State (or the Administrator [of the Environmental Protection Agency] if the Administrator has primary enforcement responsibility in the State)—(I) prior to the commencement of any hydraulic fracturing operations at any lease area of portion thereof, a list of chemicals intended for use in any underground injection during such operations, including identification of the chemical constituents of mixtures, Chemical Abstracts Service numbers for each chemical and constituent, material safety data sheets when available, and the anticipated volume of each chemical; and (II) not later than 30 days after the end of any hydraulic fracturing operations the list of chemicals used in each underground injection during such operations, including identification of the chemical constituents of mixtures, Chemical Abstracts Service numbers for each chemical and constituent, material safety data sheets when available, and the volume of each chemical used.<sup>12</sup>

The bill would also require that the state or the Environmental Protection Agency (EPA) “make the disclosure of chemical constituents ... available to the public, including by posting the information on an appropriate Internet Web site,” and the bill clarifies that the disclosure requirements “do not authorize the State (or the [EPA]) to require the public disclosure of proprietary information.”<sup>13</sup> In other words, the disclosure requirements address only the chemicals used, not the manner of their use or the amounts or ratios in which they are used. This language attempts to protect proprietary business information, that is, “secret” formulas or practices that drilling companies may feel they should not be required to disclose to their competitors.

Furthermore, the FRAC Act would require operators to disclose proprietary chemical information to medical professionals in cases of medical emergencies.<sup>14</sup> Although most state oil and gas rules do not require disclosure of proprietary chemical information to medical professionals, such disclosure broadly parallels federal requirements under the Occupational Safety and Health Act (OSHAct).<sup>15</sup> Calls for disclosure of hydraulic fracturing chemicals have increased as homeowners and others express concern about the potential presence of unknown chemicals in tainted well water near oil and gas operations.

## **Draft Proposed Bureau of Land Management Rule**

In early 2012, BLM circulated a draft version of proposed regulations that would require parties holding oil and gas leases on federal lands managed by BLM to disclose publicly the additives in hydraulic fracturing fluid.<sup>16</sup> The draft version would require proposals for “well stimulation operations” on BLM-managed land to submit, among other things, a report that “discloses all additives of the proposed stimulation fluid by additive trade name” as well as a report that

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<sup>12</sup> H.R. 1084, §2(b).

<sup>13</sup> *Id.*

<sup>14</sup> *Id.*

<sup>15</sup> The Occupational Safety and Health Administration has promulgated a set of regulations under Occupational Safety and Health Act (OSHAct), referred to as the Hazard Communication Standard (29 C.F.R. §1910.1200). Additionally, OSHAct regulations require operators to maintain Material Safety Data Sheets (MSDS) for hazardous chemicals at the job site. The federal Emergency Planning and Community Right to Know Act (EPCRA) requires that facility owners submit an MSDS for each hazardous chemical present that exceeds an EPA-determined threshold level, or a list of such chemicals, to the local emergency planning committee (LEPC), the state emergency response commission, and the local fire department. For non-proprietary information, EPCRA generally requires a LEPC to provide an MSDS to a member of the public on request.

<sup>16</sup> Mike Soraghan, Hydraulic Fracturing: *BLM Proposes More Disclosure than Most States*, Greenwire, February 6, 2012.

“discloses the complete chemical makeup of all materials used in the proposed stimulation fluid without regard to original source additive.”<sup>17</sup> The proposed rule would require the submission of other details regarding the “well stimulation program” in addition to the composition of the fluid to be used, including things like volume of fluid to be used, injection pressure, estimated fracture length, plans for recovery of the fluid, and plans for treatment of recovered fluid.<sup>18</sup> Information about the fracking operation must be updated after the drilling on the Subsequent Report Sundry Notice.<sup>19</sup>

This draft rule has not yet been published in the *Federal Register* as of the date of this report.

## State Disclosure Laws

Of the states that produce oil, natural gas, or both, at least 11 require some disclosure of information about the chemicals added to the hydraulic fracturing fluid used to stimulate a particular well.<sup>20</sup> State requirements, which take the form of laws, regulations, and administrative interpretations, vary widely. Generally, they fall into four overlapping categories: (1) which parties must disclose information about chemical additives and whether these disclosures must be made to the public or a state agency; (2) what information about chemicals added to a fracking fluid must be disclosed, including how specifically individual chemical ingredients and their actual concentrations within particular additives must be described; (3) what protections, if any, will be given to trade secrets; and (4) at what time disclosure must be made in relation to when the fracking takes place. States update their laws on fracking chemical disclosure frequently, and thus this section is designed to show trends in how states structure these provisions rather than to describe the current status of the law in any particular state. **Appendix A** provides a glossary of many of the terms used in this section. **Appendix B** contains a table summarizing the chemical disclosure requirements discussed in this report.

## Who Must Make Disclosures and To Whom

State disclosure laws require at least one party involved in the hydraulic fracturing of a specific well to divulge information about the chemicals added to the fluid used to frack that well. Under these laws, parties that must make disclosures include well owners, well operators, drilling permit holders, or “persons” that perform a fracking treatment, such as service companies.<sup>21</sup> Parties typically must divulge chemical information to the public, a state agency, or both. States that require public disclosure often mandate that parties post the information on an Internet website such as the FracFocus Chemical Disclosure Registry run by the Groundwater Protection Council

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<sup>17</sup> BLM Proposed Draft Rules at §3162.3-3(a)(4) and (5), available at [http://www.eenews.net/assets/2012/02/06/document\\_gw\\_01.pdf](http://www.eenews.net/assets/2012/02/06/document_gw_01.pdf).

<sup>18</sup> *Id.* at §3162.3-3(a)(8) and (9).

<sup>19</sup> *Id.* at §3162.3-3(f).

<sup>20</sup> At least three additional states have taken significant steps toward the adoption of disclosure obligations.

<sup>21</sup> Some states specifically provide for an intermediate stage of disclosure before the information is submitted to regulators or the public. *See, e.g.*, 178-00 ARK. CODE R. §001:B-19(k), (l)(4) (person fracking the well to permit holder); COLO. CODE REGS. §404-1:205A(b)(1), (2) (certain service providers and vendors to operator); 58 PA. CONS. STAT. §3222.1(b)(1), (2) (certain service providers and vendors to operator); 16 TEX. ADMIN. CODE §3.29(c)(1)(A), (2)(A) (supplier or service company to operator).

and the Interstate Oil and Gas Compact Commission.<sup>22</sup> Some state laws do not require direct public disclosure of fracking chemicals. However, some state agencies may choose to post the information they receive on their own websites. Additionally, state open records laws may allow a person to obtain chemical information submitted to a state agency upon request, provided that the information is not shielded from disclosure by an exception, such as an exemption for trade secrets.<sup>23</sup>

Mandatory disclosure directly to the public already occurs in at least three states: Colorado,<sup>24</sup> Pennsylvania (for unconventional wells),<sup>25</sup> and Texas.<sup>26</sup> In these states, parties must post chemical information on the FracFocus Chemical Disclosure Registry or a comparable website.<sup>27</sup> At least two states give disclosing parties a choice as to whether they will submit the information to a state agency or post it on a website accessible to the public: Louisiana<sup>28</sup> and Montana.<sup>29</sup> At least two additional states have proposed public disclosure. North Dakota would require that chemical information be posted on FracFocus,<sup>30</sup> and a California bill would have a state agency add the information to maps on its website so that the public could view a “list of chemicals ... associated with each specific well where those chemicals were injected.”<sup>31</sup>

At least six states where commercial natural gas exploration and production occur do not specifically provide for public disclosure, choosing instead to have parties submit details on chemical additives solely to state agencies, some of which may opt to post these disclosures to their websites.<sup>32</sup> These include Arkansas,<sup>33</sup> Michigan,<sup>34</sup> New Mexico,<sup>35</sup> West Virginia,<sup>36</sup> and

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<sup>22</sup> The website is located at <http://fracfocus.org/>.

<sup>23</sup> See, e.g., WYO. CODE RULES AND REGS. OIL GEN. §45(f) (stating that fracking chemical information will be protected to the extent of the Wyoming Public Records Act’s exemption for “trade secrets, privileged information and confidential commercial, financial, geological or geophysical data furnished by or obtained from any person.”).

<sup>24</sup> COLO. CODE REGS. §404-1:205A(b)(2).

<sup>25</sup> 58 PA. CONS. STAT. §3222.1(b)(2). The law takes effect on April 14, 2012.

<sup>26</sup> TEXAS ADMIN. CODE §3.29(c)(2)(A).

<sup>27</sup> The FracFocus website is not currently searchable or sortable by characteristics such as “geographic area, chemical ingredient, chemical abstract service number, time period and operator.” See 58 PA. CONS. STAT. §3222.1(b)(6). A couple of state laws provide that if it does not become searchable or sortable by a certain date, then chemical information may have to be disclosed to a state agency for posting on a state website that is searchable and sortable. See, e.g., 58 PA. CONS. STAT. §3222.1(b)(6); COLO. CODE REGS. §404-1:205A(b)(3).

<sup>28</sup> Louisiana’s regulation states that the operator must make disclosures to the state agency or “furnish a statement signifying that the required information has been submitted” to the FracFocus site or a comparable registry, so long as “all information is accessible to the public free of charge.” LA. ADMIN. CODE tit. 43, §118(C)(1), (C)(4).

<sup>29</sup> For disclosures made after fracking, the Montana Board of Oil and Gas may waive disclosure to the state if the owner or operator of the well “demonstrates that it has posted the required information” to FracFocus or another website that can be accessed by the public and meets with the state agency’s approval. MONT. ADMIN. R. 36.22.1015(4).

<sup>30</sup> Proposed Rule on Hydraulic Fracture Stimulation (November 9, 2011) (would be codified at N.D. ADMIN. CODE 43-02-03-27.1(2)(h)) [hereinafter N.D. PROPOSED RULE], available at <https://www.dmr.nd.gov/oilgas/rules2012changes.pdf>.

<sup>31</sup> Assemb. B. 591, §5, 2011-12 Gen. Assemb., Reg. Sess. (Ca. 2011).

<sup>32</sup> See, e.g., State of Ark. Oil and Gas Comm’n, Well Fracture Information, [http://www.aogc.state.ar.us/Well\\_Fracture\\_Companies.htm](http://www.aogc.state.ar.us/Well_Fracture_Companies.htm).

<sup>33</sup> 178-00 ARK. CODE R. §001:B-19(k), (l)(3).

<sup>34</sup> See MICH. DEP’T OF ENVTL. QUALITY, SUPERVISOR OF WELLS INSTRUCTION 1-2011, HIGH VOLUME HYDRAULIC FRACTURING WELL COMPLETIONS 3 (2011) [hereinafter MICH. FRACKING INSTRUCTION], available at [http://www.michigan.gov/documents/deq/SI\\_1-2011\\_353936\\_7.pdf](http://www.michigan.gov/documents/deq/SI_1-2011_353936_7.pdf).

<sup>35</sup> N.M. ADMIN. CODE §19.15.16.19(B).



Wyoming.<sup>37</sup> New York's proposed rule would do the same.<sup>38</sup> In Ohio, disclosures are made to the state agency, but the chief of the agency must post a Material Safety Data Sheet for chemicals on the agency's website if a data sheet is not already available, so that the public may view it.<sup>39</sup>

The particular parties involved in the fracking of a well that must disclose chemical information to regulators or the public vary by state. In about half of the states with these laws, only the operator of the well must disclose information about the chemicals used. This occurs in Colorado,<sup>40</sup> Louisiana,<sup>41</sup> Michigan,<sup>42</sup> New Mexico,<sup>43</sup> Pennsylvania,<sup>44</sup> and Texas.<sup>45</sup> State laws or proposals that require disclosure by either the owner or operator of the well include California (proposed law),<sup>46</sup> Montana (after fracking),<sup>47</sup> and New York (proposed rule).<sup>48</sup> The operator, well owner, or service company would have to divulge chemical information after fracking in Wyoming,<sup>49</sup> and a rule has been proposed that would create a similar requirement in North Dakota (after fracking).<sup>50</sup> In Arkansas, any "person" fracking a well in the state must disclose chemical information before fracking, and the permit holder must divulge more detailed information afterward.<sup>51</sup> In Ohio, responsibility for disclosure falls to any "person drilling within the state."<sup>52</sup>

## What Must Be Disclosed

State disclosure laws require parties to provide various levels of detail about the composition of the chemical additives used in a fracking fluid. Because some states contain protections for trade secrets that may allow parties to withhold chemical information from regulators or the public, it may be difficult to compare the *actual* level of disclosure required.<sup>53</sup> Moreover, in a few states,

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(...continued)

<sup>36</sup> W. VA. CODE §22-6A-7(a)-(b), (e)(5).

<sup>37</sup> WYO. CODE RULES AND REGS. OIL GEN. §45(d), (h).

<sup>38</sup> Proposed Rule on Operations Associated with High-Volume Hydraulic Fracturing, 33 N.Y. Reg. 11, 11-16 (September 28, 2011) (would be codified at 6 N.Y. CODES, RULES AND REGS. §560.3(c)(1)) [hereinafter N.Y. PROPOSED RULE], available at <http://www.dec.ny.gov/regulations/77401.html>.

<sup>39</sup> OHIO REV. CODE §1509.10(A), (E).

<sup>40</sup> COLO. CODE REGS. §404-1:205A(b)(2). The rule took effect on April 1, 2012.

<sup>41</sup> LA. ADMIN. CODE tit. 43, §118(C)(1), (C)(4).

<sup>42</sup> See MICH. FRACKING INSTRUCTION, *supra* note 34, at 3.

<sup>43</sup> N.M. ADMIN. CODE §19.15.16.19(B).

<sup>44</sup> 58 PA. CONS. STAT. §3222.1(b)(2).

<sup>45</sup> 16 TEX. ADMIN. CODE §3.29(c)(2)(A).

<sup>46</sup> Assemb. B. 591, §5, 2011-12 Gen. Assemb., Reg. Sess. (Ca. 2011).

<sup>47</sup> See MONT. ADMIN. R. 36.22.1015(1), (4).

<sup>48</sup> N.Y. PROPOSED RULE, *supra* note 38 (would be codified at 6 N.Y. CODES, RULES AND REGS. §560.3(c)(1)).

<sup>49</sup> WYO. CODE RULES AND REGS. OIL GEN. §45(d), (h).

<sup>50</sup> N.D. PROPOSED RULE, *supra* note 30 (would be codified at N.D. ADMIN. CODE 43-02-03-27.1(2)(h)).

<sup>51</sup> 178-00 ARK. CODE R. §001:B-19(k), (l)(3). In West Virginia, the permit applicant must make the disclosures before fracking, and the operator must make them after fracking. W. VA. CODE §22-6A-7(a)-(b), (e)(5).

<sup>52</sup> OHIO REV. CODE §1509.10(A).

<sup>53</sup> For a discussion of these protections, see "Trade Secret Protections," *infra*. These protections may be contained in a state's fracking chemical disclosure law or, for disclosures made to state agencies, an exemption for trade secrets contained in a state's open records law.

decisions about what details are trade secrets exempt from disclosure are made by the state attorney general or a state agency. These decision makers may shield information from public disclosure at their discretion, typically subject to judicial review.<sup>54</sup> This section provides a few examples of state laws that require different levels of disclosure, but does not take into account the trade secret protections in those states. For a table showing the most specific level of disclosure required on a state-by-state basis, see **Appendix B**.

The level of disclosure required by a particular law depends on how specifically parties must describe the chemical composition of the fracking fluid and the additives that are combined with it. Some states require a relatively high level of disclosure, at least before trade secret protections are taken into account. For example, Colorado requires parties to identify each chemical ingredient in the overall fracking fluid by its Chemical Abstracts Service (CAS) number<sup>55</sup> and to provide the maximum concentration of each ingredient within the fluid.<sup>56</sup> Louisiana obligates parties to provide the CAS numbers and maximum concentrations of hazardous ingredients within the additives, but not nonhazardous ingredients.<sup>57</sup> Other states require fewer details about the composition of a fracking fluid. For example, West Virginia requires only that a list of additives be provided.<sup>58</sup> Between these two ends of the spectrum are laws or proposals such as a California bill that would require parties to submit a complete list of chemical ingredients in the fracking fluid by CAS number, but would not require them to provide any information about chemical ingredient concentrations.<sup>59</sup> Similarly, some states obligate parties to furnish the specific identities of ingredients within the total fracking fluid but do not require that these identities be linked to particular additives, as Arkansas does.<sup>60</sup> At least three states require disclosures to be made before and after fracking. In these states, the level of disclosure differs depending on whether the information is submitted before or after treatment of the well.<sup>61</sup>

Some states require that parties submit Material Safety Data Sheets (MSDSs) for additives or chemical ingredients in a fracking fluid.<sup>62</sup> Employers are required to use MSDSs to warn employees of hazardous chemicals in the workplace under the OSHAct.<sup>63</sup> Because MSDSs

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<sup>54</sup> See, e.g., 178-00 ARK. CODE R. §001:B-19(k)(8), (l)(3)(C) (director of state agency); TEXAS ADMIN. CODE §3.29(f) (state attorney general); WYO. CODE RULES AND REGS. OIL GEN. §45(f) (state agency).

<sup>55</sup> For more about these numbers, see CAS Registry Numbers, <http://www.cas.org/expertise/cascontent/registry/regsyst.html>.

<sup>56</sup> COLO. CODE REGS. §404-1:205A(b)(2)(A)(ix)-(xii). It does not require parties to link the ingredients to the additive of which they are a part.

<sup>57</sup> LA. ADMIN. CODE tit. 43, §118(C)(1)(d)-(e). The Louisiana rule states that this information must be provided for “ingredients contained in the hydraulic fracturing fluid that are subject to the requirements of 29 CFR Section 1910.1200(g)(2).” In other words, the information must be provided for those ingredients that are hazardous according to the OSHAct regulations on workplace hazard communication.

<sup>58</sup> See, e.g., W. VA. CODE §22-6A-7(e)(5). Other information that may provide a relatively low level of disclosure includes information such as additive type (for example, acid, biocide, or breaker); trade name or vendor of an additive; or volume an additive. See, e.g., LA. ADMIN. CODE tit. 43, §118(C)(1)(a)-(c) (requiring some of these characteristics but also requiring a higher level of disclosure for hazardous ingredients).

<sup>59</sup> Assemb. B. 591, §4, 2011-12 Gen. Assemb., Reg. Sess. (Ca. 2011).

<sup>60</sup> 178-00 ARK. CODE R. §001:B-19(k)(7)-(8), (l)(3)(C).

<sup>61</sup> These states include Arkansas (more detail afterward), Montana (more detail afterward), and Wyoming (less detail afterward). See 178-00 ARK. CODE R. §001:B-19(k)(7)-(8), (l)(3)(C); MONT. ADMIN. R. 36.22.608; MONT. ADMIN. R. 36.22.1015; WYO. CODE RULES AND REGS. OIL GEN. §45(d), (h).

<sup>62</sup> See, e.g., OHIO REV. CODE §1509.10(E); MICH. FRACKING INSTRUCTION, *supra* note 34, at 3.

<sup>63</sup> See 29 C.F.R. §1910.1200(a)(1).

provide data only on chemicals considered to be hazardous under OSHA regulations, they may offer a relatively low level of disclosure. The most specific details that parties must include on MSDSs are the common or chemical names of certain hazardous ingredients, assuming that the names do not qualify for trade secret protection.<sup>64</sup> Thus, under the regulations, CAS numbers or the concentrations of ingredients within an additive do not have to be listed.<sup>65</sup> This does not mean, however, that a state agency could not require parties to list more detailed information on MSDSs, or that some parties would not voluntarily submit data sheets with more information.

A few states specifically exempt certain information from disclosure. In Colorado, a party is not required to

(1) disclose chemicals that are not disclosed to it by the manufacturer, vendor, or service provider; (2) disclose chemicals that were not intentionally added to the hydraulic fracturing fluid; or (3) disclose chemicals that occur incidentally or are otherwise unintentionally present in trace amounts, may be the incidental result of a chemical reaction or chemical process, or may be constituents of naturally occurring materials that become part of a hydraulic fracturing fluid.<sup>66</sup>

Laws in Pennsylvania<sup>67</sup> and Texas<sup>68</sup> contain similar language.

## **Trade Secret Protections**

Closely related to *what* must be submitted under a particular disclosure law are the protections provided for trade secrets. More than half of the disclosure laws or proposals examined contain trade secret protections. A state may require detailed disclosure of chemical information, but if it also provides a high degree of protection for trade secrets, parties may be able to avoid making significant disclosures to a state agency or the public. Although the definition of a “trade secret” may differ under various states’ laws, this section assumes that a trade secret is: (a) information valuable to its owner because others who could obtain value from it do not know the information and cannot easily discover it; and (b) information that is subject to reasonable measures to protect it from disclosure.<sup>69</sup> Whether a particular law requires the public disclosure of trade secrets may have implications for whether a court would find that the law effects a taking of property under the Takings Clause of the Fifth Amendment—a finding that could potentially require that just compensation be made to the owner of the trade secrets.<sup>70</sup>

Some disclosure laws or proposals lack trade secret protections. These include California (proposed law), Michigan, North Dakota (proposed rule), Ohio, and West Virginia. Some of these

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<sup>64</sup> *See id.* §1910.1200(g)(2), (i).

<sup>65</sup> *See id.*

<sup>66</sup> COLO. CODE REGS. §404-1:205A(c).

<sup>67</sup> 58 PA. CONS. STAT. §3222.1(c).

<sup>68</sup> 16 TEX. ADMIN. CODE §3.29(d).

<sup>69</sup> *See* U.T.S.A. §1(4) (1985). A few states continue to rely on the definition provided in the Restatement of Torts, RESTATEMENT OF TORTS §757 cmt. b (1939). Texas provides a definition of “trade secret” within its chemical disclosure law that is based on the Restatement definition. 16 TEX. ADMIN. CODE §3.29(a)(26).

<sup>70</sup> *See generally* Ruckelshaus v. Monsanto, 467 U.S. 986 (1984) (holding that when the government discloses trade secrets that a party has been required to submit to the government by law, a taking could result in some circumstances); Philip Morris v. Reilly, 312 F.3d 24 (1<sup>st</sup> Cir. 2002) (en banc) (holding that a law that compels disclosure of a party’s trade secrets may effect a taking).

states may not provide trade secret protections because the information required to be disclosed under their laws is not detailed enough to be considered a trade secret, perhaps because it is knowledge that is generally known or easily discoverable.<sup>71</sup> Or, in some instances, trade secret protections may be provided in another state law, such as an exemption for trade secrets contained in an open records law that could allow a state agency that had received chemical information to prevent it from being disclosed to the public.<sup>72</sup>

At least one state allows parties to withhold all details about fracking additives that the parties consider to be trade secrets. New Mexico's rule states, "The division does not require the reporting or disclosure of proprietary, trade secret or confidential business information," apparently leaving the determination of what may be excluded to the discretion of the submitter.<sup>73</sup> In contrast, a few states allow withholding only if parties provide alternative information about chemical ingredients to regulators or the public for disclosure, such as the chemical family for the ingredients. For example, Montana asks that, for withheld trade secret chemicals, parties provide the "trade name, inventory name, chemical family name, or other unique name and the quantity of such constituent(s) used."<sup>74</sup> In Montana, as well as in Colorado<sup>75</sup> and Louisiana,<sup>76</sup> when parties withhold information and provide a less detailed description of chemical additives, regulators do not have the authority to force disclosure in ordinary circumstances. However, as described below, some states make an exception and require disclosure in special circumstances like spills or medical emergencies.

Some disclosure laws give the state attorney general or a state agency the authority to approve or deny an exemption for trade secrets. These laws vary as to whether parties may withhold the information prior to the decision or must first submit it to the state. For example, the Texas rule, which allows parties to initially withhold information, allows landowners and others to challenge a claim of trade secret protection and lists procedures to be used by the state attorney general to decide whether to exempt the information from disclosure.<sup>77</sup> New York's proposed rule would require that parties first submit the information to a state agency. Parties could request an exemption for their trade secrets under the state environmental agency's open records rules, which provide procedures and standards by which the agency decides whether to grant or deny confidentiality protection to proprietary information.<sup>78</sup> In Wyoming, the state oil and gas commission decides whether information that has been submitted to it is exempt from public disclosure.<sup>79</sup>

At least six disclosure laws make an exception to trade secret protections for situations in which a health care professional needs the information in order to provide medical care. Typically, the

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<sup>71</sup> See *supra* sources cited note 69; see also *Philip Morris*, 312 F.3d at 27 (lead opinion) (discussing how companies challenging a disclosure law feared that the disclosure of the relative amounts of ingredients in their products would allow competitors to reverse engineer the chemical formulas for them).

<sup>72</sup> See WYO. CODE RULES AND REGS. OIL GEN. §45(f).

<sup>73</sup> N.M. ADMIN. CODE §19.15.16.19(B).

<sup>74</sup> MONT. ADMIN. R. 36.22.1016(1).

<sup>75</sup> COLO. CODE REGS. §404-1:205A(b)(2)(B)-(C), (d).

<sup>76</sup> LA. ADMIN. CODE tit. 43, §118(C)(2)(a).

<sup>77</sup> 16 TEX. ADMIN. CODE §3.29(e)-(f).

<sup>78</sup> N.Y. PROPOSED RULE, *supra* note 48 (would be codified at 6 N.Y. CODES, RULES AND REGS. §560.3(c)(2)).

<sup>79</sup> WYO. CODE RULES AND REGS. OIL GEN. §45(f) (referring to a provision in the Wyoming Public Records Act).

professional must execute a confidentiality agreement before or after disclosure occurs.<sup>80</sup> For example, Colorado's rule states the following:

Vendors, service companies, and operators shall identify the specific identity and amount of any chemicals claimed to be a trade secret to any health professional who requests such information in writing if the health professional provides a written statement of need for the information and executes a confidentiality agreement, Form 35. The written statement of need shall be a statement that the health professional has a reasonable basis to believe that (1) the information is needed for purposes of diagnosis or treatment of an individual, (2) the individual being diagnosed or treated may have been exposed to the chemical concerned, and (3) knowledge of the information will assist in such diagnosis or treatment.<sup>81</sup>

In addition, Colorado's rule provides that in immediate medical emergencies, trade secret information must be provided to the health professional "upon a verbal acknowledgement by the health professional that such information shall not be used for purposes other than the health needs asserted and that the health professional shall otherwise maintain the information as confidential."<sup>82</sup> A written confidentiality agreement may be requested "as soon as circumstances permit."<sup>83</sup> Other states with some form of medical emergency exception include Arkansas (confidentiality agreement not required in law),<sup>84</sup> Louisiana (confidentiality agreement not required in law),<sup>85</sup> Montana (confidentiality agreement may be required in non-emergencies; may be requested in emergencies),<sup>86</sup> Pennsylvania (written confidentiality agreement required in non-emergencies; may be requested in emergencies when circumstances permit),<sup>87</sup> and Texas (information must be held confidential).<sup>88</sup> Colorado's rule provides a similar kind of exception for disclosures provided to state agency employees responding to a spill or release, with provisions for confidentiality,<sup>89</sup> as do similar provisions in states such as Montana<sup>90</sup> and Pennsylvania.<sup>91</sup>

## When Disclosures Must Be Made

A few states mandate disclosures both before and after each fracking treatment. For example, Wyoming requires a party to divulge additives and compounds "*proposed* to be mixed and injected" prior to stimulation of the well.<sup>92</sup> After the procedure, at least one of the applicable

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<sup>80</sup> This may be intended to ensure that a disclosing party preserves any trade secrets disclosed, as trade secrets may be destroyed if revealed to a third party without a confidentiality agreement. *See* sources cited *supra* note 69.

<sup>81</sup> COLO. CODE REGS. §404-1:205A(b)(5).

<sup>82</sup> *Id.*

<sup>83</sup> *Id.*

<sup>84</sup> 178-00 ARK. CODE R. §001:B-19(k)(9), (l)(5). A couple of states' exceptions provide that trade secrets must be disclosed in emergencies when state or federal law requires disclosure. *See, e.g.*, 178-00 ARK. CODE R. §001:B-19(k)(9), (l)(5); LA. ADMIN. CODE tit. 43, §118(C)(3).

<sup>85</sup> LA. ADMIN. CODE tit. 43, §118(C)(3).

<sup>86</sup> MONT. ADMIN. R. 36.22.1016(3)-(4).

<sup>87</sup> PA. CONS. STAT. §3222.1(b)(10)-(11). If a confidentiality agreement is requested, the health professional must provide one.

<sup>88</sup> 16 TEX. ADMIN. CODE §3.29(c)(4), (g). The Texas rule borrows some of its confidentiality procedures from OSHA's regulations on hazard communication at 29 C.F.R. §1910.1200(i). 16 TEX. ADMIN. CODE §3.29(c)(4).

<sup>89</sup> COLO. CODE REGS. §404-1:205A(d).

<sup>90</sup> MONT. ADMIN. R. 36.22.1016(2).

<sup>91</sup> PA. CONS. STAT. §3222.1(d)(2).

<sup>92</sup> WYO. CODE RULES AND REGS. OIL GEN. §45(d).

parties must disclose information about the *actual* chemicals used.<sup>93</sup> Similar rules exist in Arkansas<sup>94</sup> and Montana,<sup>95</sup> which both require that disclosures made after fracking contain a higher level of detail than those made before fracking. Disclosures made prior to fracking that specifically identify the chemicals that will be used potentially give parties with access to the data the opportunity to perform baseline testing on water sources near the drilling site for those particular chemicals.<sup>96</sup> Baseline testing results can then be compared with results from post-well stimulation testing to see if any groundwater contamination has occurred and, if it has, to possibly locate its source.<sup>97</sup>

Most of the other state disclosure laws require parties to submit information about the chemicals used to frack a well at a single time following the drilling, fracking, or completion of the well. States with laws that require disclosure after completion of a well that has been fracked include Louisiana (within 20 days),<sup>98</sup> New Mexico (within 45 days),<sup>99</sup> and Texas (timeframe varies).<sup>100</sup> Ohio law mandates disclosures within 60 days after completion of the drilling of the well to the “proposed total depth” or “after a determination that a well is a dry or lost hole.”<sup>101</sup> A California bill,<sup>102</sup> Colorado,<sup>103</sup> and Pennsylvania (unconventional wells)<sup>104</sup> require disclosure within 60 days after a fracking treatment ends.

North Dakota’s proposed rule is unique. In addition to requiring disclosure after fracking is carried out, it would also require disclosure when pressure in the space between the intermediate casing and surface casing in the well goes beyond a certain threshold.<sup>105</sup>

<sup>93</sup> *Id.* §45(h).

<sup>94</sup> 178-00 ARK. CODE R. §001:B-19(k), (l)(3).

<sup>95</sup> MONT. ADMIN. R. 36.22.608; MONT. ADMIN. R. 36.22.1015. New York has proposed to require disclosure prior to fracking in the drilling permit application, but not after fracking. N.Y. PROPOSED RULE, *supra* note 38 (would be codified at 6 N.Y. CODES, RULES AND REGS. §560.3(c)).

<sup>96</sup> AM. PETROLEUM INST., HYDRAULIC FRACTURING OPERATIONS—WELL CONSTRUCTION AND INTEGRITY GUIDELINES §10.2 (2009), available at [http://www.api.org/~media/Files/Policy/Exploration/API\\_HF1.ashx](http://www.api.org/~media/Files/Policy/Exploration/API_HF1.ashx); see also CRS Report R41760, *Hydraulic Fracturing and Safe Drinking Water Act Issues*, by Mary Tiemann and Adam Vann.

<sup>97</sup> See sources cited *supra* note 96.

<sup>98</sup> LA. ADMIN. CODE tit. 43, §118(C)(1) (referring to LA. ADMIN. CODE tit. 43, §105 for the timeframe).

<sup>99</sup> N.M. ADMIN. CODE §19.15.16.19(B).

<sup>100</sup> In Texas, the operator must divulge chemicals to the public “on or before the date the well completion report” is sent to the state agency. 16 TEX. ADMIN. CODE §3.29(c)(2)(A). Well completion reports are due on the earlier date of 30 days after well completion or 90 days after drilling is finished. *Id.* §3.16(b).

<sup>101</sup> OHIO REV. CODE §1509.10(A). “If a well is not completed within sixty days after the completion of drilling operations,” the owner must file a “supplemental well completion record” with the pertinent information “within sixty days after the completion of the well.” *Id.* §1509.10(B)(2). West Virginia requires disclosures to be made with a report that must be filed within a “reasonable time” after drilling. W. VA. CODE §22-6A-7(e)(5); see also *id.* §22-6-22(a).

<sup>102</sup> Assemb. B. 591, §5, 2011-12 Gen. Assemb., Reg. Sess. (Ca. 2011). “Upon a showing of hardship, the supervisor may extend the time within which to comply with this section for a period not to exceed 60 additional days.” *Id.*

<sup>103</sup> COLO. CODE REGS. §404-1:205A(b)(2). However, Colorado specifies that disclosure must be made no later than 120 days after fracking begins.

<sup>104</sup> 58 PA. CONS. STAT. §3222.1(b)(2).

<sup>105</sup> N.D. PROPOSED RULE, *supra* note 30 (would be codified at N.D. ADMIN. CODE 43-02-03-27.1(2)(h), (3)).

## Conclusion

Many federal and state legislators and regulatory authorities have adopted or proposed measures that would create new disclosure requirements applicable to the practice of hydraulic fracturing, a natural resource recovery technique that is widely used in the recovery of natural gas from shale formations. The Shale Gas Production Subcommittee of the Secretary of Energy Advisory Board has recommended the public disclosure, on a well-by-well basis, of all of the chemical ingredients added to fracking fluids—even those ingredients that do not meet OSHA’s standards for hazardous chemicals requiring MSDSs. The subcommittee recommended that some protection for trade secrets be provided.

At the federal level, legislation has been introduced in the 112<sup>th</sup> Congress that would create disclosure requirements for all hydraulic fracturing operations nationally. BLM is reportedly considering disclosure requirements that would be applicable for hydraulic fracturing on all lands managed by the agency.

Chemical disclosure laws or proposals at the state level vary widely. Of the 11 current laws and three proposals examined in this report, only a few require direct public disclosure of chemical information by mandating that parties post the information on the FracFocus chemical disclosure website. The level of detail required to be disclosed often depends on how states protect trade secrets, as these protections may allow submitting parties to withhold information from disclosure at their discretion or to submit fewer details about proprietary chemicals, except, perhaps, in emergencies. Even if a disclosure law does not protect information from public disclosure, other state laws, such as an exemption in an open records law, may do so. A few states require the submission of MSDSs for certain chemicals. MSDSs may offer a relatively low level of disclosure, as the most specific details that parties must include on the data sheets under OSHA regulations are the chemical or common names of certain hazardous ingredients instead of chemicals’ internationally unique CAS numbers and concentrations. With regard to the timing of disclosure, a few state laws require at least some disclosure of information about fracking fluid chemical composition before fracking is performed, but these states typically require less detailed information to be provided before fracking than afterward.

## Appendix A. Glossary of Terms

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<b>Additive</b>	A product composed of one or more chemical constituents that is added to a primary carrier fluid to modify its properties in order to form hydraulic fracturing fluid
<b>Chemical Abstracts Service (CAS) Number</b>	The unique identification number assigned to a chemical by the division of the American Chemical Society that is the globally recognized authority for information on chemical substances
<b>Chemical Constituent/Ingredient</b>	A discrete chemical with its own specific name or identity, such as a CAS number, that is contained in an additive
<b>Chemical Family</b>	A group of chemicals that share certain physical and chemical characteristics and have a common general name
<b>Completion</b>	The activities and methods used to prepare a well for production after drilling
<b>FracFocus.org</b>	The chemical disclosure registry website developed by the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission
<b>Hydraulic Fracturing</b>	The treatment of a well by the application of hydraulic fracturing fluid under pressure for the express purpose of initiating or propagating fractures in a target geologic formation to enhance production of oil and/or natural gas
<b>Hydraulic Fracturing Fluid</b>	The primary carrier fluid and all applicable additives
<b>Material Safety Data Sheet (MSDS)</b>	A written or printed document that is prepared for a chemical mixture or ingredient considered to be hazardous under OSHA standards according to OSHA's regulations on hazard communication at 29 C.F.R. §1910.1200(g)(2)
<b>Operator</b>	A person who assumes responsibility for the physical operation and control of a well
<b>Owner</b>	A person who owns, manages, leases, controls, or possesses a well property
<b>Primary Carrier Fluid</b>	The base fluid, such as water, into which additives are mixed to form the hydraulic fracturing fluid that transports proppant
<b>Product</b>	A hydraulic fracturing additive that is manufactured using precise amounts of specific chemical constituents and is assigned a commercial name under which the substance is sold or utilized
<b>Proppant</b>	Sand or any natural or man-made material that is used in a hydraulic fracturing treatment to prop open the artificially created or enhanced fractures once the treatment is completed
<b>Service Company</b>	An entity that performs hydraulic fracturing treatments on a well
<b>Supplier</b>	A company that sells or provides an additive for use in a hydraulic fracturing treatment
<b>Trade Secret</b>	Any formula, pattern, device, or compilation of information that is used in a person's business, and that gives the person an opportunity to obtain an advantage over competitors who do not know or use it

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**Source:** Compiled by the Congressional Research Service from definitions contained in the Department of Energy's primer on shale gas development; the Arkansas, Pennsylvania, and Texas disclosure laws or regulations; and New York's proposed disclosure rule.

**Note:** This glossary provides common definitions for terms found in the report. A particular law may define these terms differently.



## Appendix B. Summary of Chemical Disclosure Laws

**Table B-1. Hydraulic Fracturing Chemical Disclosure Requirements**

Laws and Proposals at the State and Federal Levels

Law (or Proposal)	Who Must Disclose and To Whom <sup>a</sup>	What Must Be Disclosed (Most Specific Details) <sup>b</sup>	Trade Secret Protections <sup>c</sup>	When Disclosures Must Be Made
FRAC Act (S. 587; H.R. 1084)	Person conducting fracking operations discloses to state (or EPA, if it has primary enforcement responsibility in the state), which posts on Internet.	Before and after fracking: CAS numbers of ingredients in frack fluid; Material Safety Data Sheets when available; “chemical” volumes.	No public disclosure of chemical formulas. Disclosure to state (or EPA) or health professional upon request in a medical emergency. Fracking party may require confidentiality agreement after disclosure.	S. 587: before and after fracking (same level of disclosure); deadlines set by state (or EPA).  H.R. 1084: before fracking and within 30 days after the end of fracking (same level of disclosure).
Bureau of Land Management (draft proposed rule for federal lands)	Operator discloses to BLM before and after fracking (same level of disclosure at both times). Operator certifies that fluid complies with applicable laws, regulations, etc.	Before and after fracking: CAS numbers of ingredients in frack fluid; ingredient concentrations in fluid (% by mass); information not linked to specific additives.	Operators may claim that a federal statute or regulation protects information from public disclosure; must identify law, explain why information is exempt, and tell BLM if information is available to the public elsewhere.	At least 30 days before fracking.  Also after fracking.  Unclear if additional disclosures must be made within 15 days after certain annulus pressure exceeds threshold.
Arkansas	Disclosures are made to state agency. Any “person” fracking a well in the state makes less detailed disclosures before fracking, and the permit holder makes more detailed disclosures after fracking.	Before fracking: CAS numbers of ingredients in frack fluid.  After fracking: CAS numbers of ingredients added to the frack fluid by any person fracking the well and the permit holder; additive concentrations (% by volume) in the fluid.	Chemical families must be provided when ingredient identities are withheld. A person fracking a well and/or the permit holder may submit claim of protection to state agency for decision. Exceptions for medical emergencies when state or federal law requires disclosure.	Some disclosure before fracking.  More detailed disclosures must be made within 30 days of completion of a fracked well.
California (proposed legislation)	Owner or operator makes disclosures to state agency, which posts a list of ingredients used to frack each well on maps on the agency’s website.	CAS numbers of ingredients in the frack fluid.	None in the proposed legislation.	Within 60 days after fracking. Upon a showing of hardship, the state agency may extend timeframe for disclosure by up to 60 more days.

<b>Law (or Proposal)</b>	<b>Who Must Disclose and To Whom<sup>a</sup></b>	<b>What Must Be Disclosed (Most Specific Details)<sup>b</sup></b>	<b>Trade Secret Protections<sup>c</sup></b>	<b>When Disclosures Must Be Made</b>
Colorado, effective April 1, 2012	Operator makes disclosures to public by posting on the FracFocus Internet website. If, as of Jan. 1, 2013, state agency finds that the site will not be searchable and sortable by operator, CAS number, geographic area, etc. by date certain, then state may require operator to disclose to state agency for posting on a site that is searchable and sortable.	CAS numbers and max concentrations (% by mass in fluid) of ingredients intentionally added to the frack fluid. Some disclosures not required: e.g., chemicals not disclosed to operator by manufacturer, vendor, or service company; chemicals that are unintentionally present in trace amounts.	Operator discloses information not claimed to be a trade secret, along with chemical family or similar descriptor for information withheld. Claim of protection is submitted to state agency by vendor, service provider, or operator. Information is then automatically protected. Exceptions for medical emergencies and spills (with confidentiality protections).	Within the earlier of 60 days after fracking ends or 120 days after fracking begins.
Louisiana	Operator makes disclosures to state agency or submits statement that it has disclosed information to the public via FracFocus or a comparable website that is accessible to the public and free of charge.	For hazardous ingredients (under OSHA standards): CAS numbers; maximum ingredient concentrations within additives (% by mass) and within the frack fluid (% by mass of total volume). Operator is not required to disclose information not disclosed to it by an entity claiming trade secret protection.	Chemical identities and CAS numbers may be withheld if claimed to be trade secrets or found to be trade secrets under 29 C.F.R. §1910.1200(i). Chemical family must still be provided. Exception in medical emergencies when state or federal law requires disclosure.	Within 20 days after well completion.
Michigan	Operator makes disclosures to state agency when it conducts a high-volume fracking well completion.	Material Safety Data Sheets that are provided by service company for “additives” used.	None in the disclosure rule.	Filed with record of well completion operations, which is due within 60 days of drilling completion.
Montana	Before fracking: operator discloses to state agency in drilling permit application or notice.  After fracking: owner or operator discloses to state agency or public. Public disclosure occurs on FracFocus or other publicly accessible website approved by the state agency.	Before fracking: disclosures may include trade name of “principal components” or chemicals”; estimated amount or volume of “principal components.”  After fracking: CAS numbers of ingredients in frack fluid; additive concentrations in fluid.	Owner, operator, or service contractor may withhold trade secret chemical and identify it by trade name, inventory name, chemical family, etc. and quantity used. Exceptions for medical emergencies and spills (with confidentiality protections).	Less specific disclosures made before fracking in drilling permit application or notice.  More specific disclosures made after fracking upon completion of the well.

<b>Law (or Proposal)</b>	<b>Who Must Disclose and To Whom<sup>a</sup></b>	<b>What Must Be Disclosed (Most Specific Details)<sup>b</sup></b>	<b>Trade Secret Protections<sup>c</sup></b>	<b>When Disclosures Must Be Made</b>
New Mexico	Operator discloses to state agency. Operator must certify that disclosures are true and complete to the best of its knowledge and belief.	CAS numbers of ingredients in frack fluid; max concentrations of ingredients in additives and fluid (% by mass). However, no more disclosure must be made than would be included on a Material Safety Data Sheet under 29 C.F.R. §1910.1200.	"The division does not require the reporting or disclosure" of trade secrets.	Within 45 days after well completion.
New York (proposed rule)	Owner or operator discloses to state agency in application for permit to drill, deepen, plug back, or convert a well when it plans to use high-volume fracking.	Material Safety Data Sheets for proposed additives; additive concentrations in frack fluid (% by weight of water). Also may have to show that proposed additives pose lower risk to water and environment than alternatives.	Persons who supply information may request exemption under state agency's open records rule. Agency determines whether records are exempt from public disclosure.	Before fracking in application for permit to drill, deepen, plug back, or convert a well when high-volume fracking is planned.
North Dakota (proposed rule)	After fracking: owner, operator, or service company discloses to public on FracFocus website.  During fracking: when pressure in intermediate casing-surface casing annulus exceeds threshold; owner or operator posts on FracFocus.	CAS numbers of ingredients in frack fluid; max ingredient concentrations in additives and fluid.	None in the proposed disclosure rule.	After fracking.  Also possibly when pressure in the intermediate casing-surface casing annulus exceeds a certain threshold (same level of disclosure; owner or operator discloses).
Ohio	Any person drilling within the state discloses to state agency, which posts Material Safety Data Sheets on its website.	Material Safety Data Sheets for materials used.	None in the disclosure law. Parties have withheld some information about trade secret chemicals, such as CAS numbers, from Material Safety Data Sheets posted on the state's website.	Within 60 days after the end of drilling operations or after determination that well is a dry or lost hole. If the well is not completed within 60 days of drilling, owner must file a supplement with the information required within 60 days after well completion.

<b>Law (or Proposal)</b>	<b>Who Must Disclose and To Whom<sup>a</sup></b>	<b>What Must Be Disclosed (Most Specific Details)<sup>b</sup></b>	<b>Trade Secret Protections<sup>c</sup></b>	<b>When Disclosures Must Be Made</b>
Pennsylvania, effective April 14, 2012	For unconventional wells: operator discloses to public on FracFocus. By Jan. 1, 2013, state agency determines whether FracFocus can be searched or sorted by CAS number, operator, geographic area, etc. If not, then agency must consider posting data on its website so it can be searched and sorted.  For conventional wells: operator discloses to state agency.	For unconventional wells: ingredients cannot be linked to additives; regulations pending. Not required: chemicals not disclosed by vendor, service provider, or operator; chemicals not intentionally added to frack fluid, etc.  For conventional wells: CAS numbers of hazardous ingredients (under OSHA standards) intentionally added to frack fluid linked to additives; hazardous ingredient concentrations (% by volume) in the fluid. CAS numbers and max concentrations (% by mass) of other ingredients added to the fluid.	For unconventional wells: vendor, service provider, or operator may withhold trade secrets from public. Operator discloses chemical family or similar descriptor. Medical emergency/spill exceptions (with confidentiality protections).  For conventional wells: operator may claim trade secret protection and state agency determines if information qualifies for exemption under state open records law or other applicable state law.	For unconventional wells: within 60 days after fracking.  For conventional wells: within 30 days after well completion.
Texas	Operator discloses to public on FracFocus website.	CAS numbers and actual/max. concentrations (% by mass) of hazardous ingredients (according to OSHA standards) in frack fluid. Also, CAS numbers for nonhazardous ingredients intentionally put in frack fluid. Disclosures not required include chemicals not disclosed by manufacturer, supplier, or service company; chemicals naturally occurring in fluid.	Supplier, service company, or operator may claim trade secret protection. Chemical family or similar description must be provided for chemicals withheld. Certain landowners and others may challenge trade secret claims. State attorney general decides if information is protected, subject to appeal. Exceptions for emergencies; borrows some confidentiality procedures from 29 C.F.R. §1910.1200(i).	On or before the date the well completion report is due (timeframe varies).
West Virginia	Horizontal well work: permit applicant (before fracking) and operator (after fracking) disclose to state agency.	Before fracking: list of anticipated “additives” that may be used.  After fracking: list of “additives” actually used submitted with well completion log.	None in the disclosure law.	Before fracking: list of anticipated “additives” that may be used.  After fracking: list of “additives” actually used submitted with well completion log.

Law (or Proposal)	Who Must Disclose and To Whom <sup>a</sup>	What Must Be Disclosed (Most Specific Details) <sup>b</sup>	Trade Secret Protections <sup>c</sup>	When Disclosures Must Be Made
Wyoming	Owner, operator, or service company discloses to state agency.	Before fracking: for each stage, CAS numbers and concentrations in frack fluid of proposed “additives” and “compounds”; state agency may request chemical formulas.  After fracking: for each stage, each “actual chemical additive name” and the additive’s concentration within the frack fluid.	Claim made to state agency. Trade secrets protected to extent of state open records law’s exemption for trade secrets. Agency decides whether information is exempt from public disclosure.	More detailed disclosures before fracking.  Less detailed disclosures after fracking (no CAS numbers).

**Source:** Compiled by the Congressional Research Service from disclosure laws, regulations, and proposals.

**Note:** States update their laws on fracking chemical disclosure frequently, and thus this table is designed to show trends in how states structure these provisions rather than to describe the current status of the law in any particular state.

- a. This category does not include intermediate disclosures required to be made in some states, including Arkansas (person fracking the well to permit holder), California (proposed bill) (person fracking the well to owner or operator), Colorado (certain service providers and vendors to operator), Pennsylvania (certain service providers and vendors to operator), and Texas (supplier or service company to operator). When disclosures are made to a government agency, some agencies may choose to disclose information to the public, for example by posting the information on their websites.
- b. This category includes only the most specific details that must be disclosed. To determine the actual level of disclosure required, trade secret protections must be considered, as these protections may allow parties to prevent the disclosure of information to regulators or the public.
- c. This category refers only to trade secret protections contained in the disclosure law itself and not in other laws that may provide protections, such as open records laws.

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